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ABSTRACT

This publication is primarily designed for educational practitioners who possess little or no training in conducting mail surveys or have not kept current on the present state of the art of survey methods and techniques. It is also intended to be a checking and comparing aid to ensure that important research considerations are taken into account. The guide begins with an overview followed by a section on survey planning that discusses purposes of a survey and steps in designing and executing one. Further chapters discuss sample selection, instrument (questionnaire) construction, and item (individual question) production. Other topics discussed are how to estimate costs and ways of dealing with the problems of nonresponse. The final chapter on reporting the results advises researchers that the plan of analysis should be formed before the data are collected. This includes a format for tabulating and classifying the data to be collected and a well-thought-out plan for the statistical treatment of the data. Techniques for data presentation, with guides for table construction, are offered with the admonition that if the report cannot be easily understood by the targeted audience, the whole project can be considered a waste of time. (Author/MLF)

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PREFACE

This publication is primarily designed for practitioners who possess little or no training in conducting mail surveys, but who must constantly make important decisions based on survey findings. The pressing demand for adequate, accurate and timely information is one of the most critical needs of educational managers in conducting the day-to-day business of our schools. Unfortunately, evidence exists which indicates that too many of these managers engage in survey work with "dull" tools. It is felt that the promising practices included herein cover all that most practitioners need and want to know about mail surveys to help them sharpen their survey skills and grow in professional effectiveness.

Every attempt was made to make this a non-technical treatment of survey methodology. It was felt that practitioners will find this practical down-to-earth approach a welcome aid. The various subparts are arranged according to the major considerations which must be examined by those who plan to use the mail survey approach and are offered:

1. as a pool of promising practices selected from various sources and which ordinarily are not available in a single document.
2. as a refresher to the individual who has not kept current on the present state of the art of survey methods and techniques.
3. as a checking and comparing aid to ensure that important considerations are taken into account.

The information included herein is presented as a point-of-departure to stimulate and improve the quality of mail surveys. Nevertheless, the practitioner is urged to supplement these suggestions with more complete information from other sources once he has his bearings.

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CHAPTER I

OVERVIEW

The Management Process

Decision-making is an essential aspect of the management process and relies upon getting the proper information in the proper format at the time. In addition to members of Congress, state legislatures, and others who control the purse strings, decision-makers include school board members and school practitioners who must determine which promising practice will become an integral part of their management approach or academic program. Finally, and surely not least, decision-makers include teachers who not only need to know why programs are introduced, but also how to implement them.

Today's educational managers require the support of an efficiently operating information system that can supply them with accurate, timely, and relevant information that is responsive to a wide range of decision-making needs. The questions being asked appear to be getting harder each day. In the past, experienced administrators developed a pattern of action based upon their experience. They knew what to expect, and they applied past solutions to current problems. Under these somewhat stable circumstances, the experienced manager had a sizable advantage over the more inexperienced. Today, new and experienced managers are much more nearly on equal terms in many situations. The former successful solutions are not always applicable to many of the current, rapidly changing conditions. Managers must overcome the temptation to react to

new problems on the basis of previous practice.

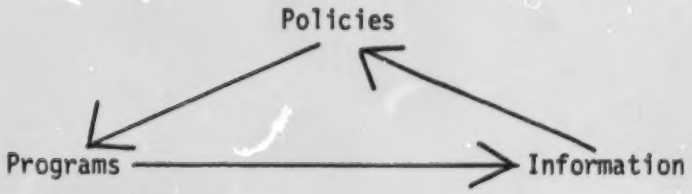
Decision-Making

Information is used for a variety of reasons. It is of extreme importance to any agency which desires to serve, persuade, or sell to people. Information is used for making decisions about why change should be made, what changes should be made, how changes should be made, who should make changes, when changes should be made, and where changes should be made. More specifically, information is used to forecast consequences; set objectives; develop strategies; establish priorities; sequence steps to be followed; allocate resources; set procedures; develop policies; recruit, orient and train others; assign responsibility; inform; persuade and inspire people to take desired action; encourage independent thought and stimulate creativity; determine effectiveness and efficiency of programs; take corrective action; etc.

Decisions can be defined as being informed judgments based on information. The decision-making process can range from the simple to the complex. Different decision-makers require unique kinds of information that necessitates different levels of analyses. Usually decision-making strategies are greatly influenced by the perception and the operating style of the individual. Most decision makers devote much of their time in accumulating, processing, and analyzing information prior to making a judgment. Others are sometimes reluctant to totally commit themselves to systematic decision-making, because they want the prerogative to ignore useful information and devote more attention to feelings and interests of the people affected by their decisions.

Nevertheless, decision-making is an art which is greatly influenced by the political, social, and economic realities of our time. The basic pattern for educational decision-making is a simple one and can be graphically portrayed in the following manner:

Figure 1



The Mail Survey

The mail survey is considered the least costly approach which can be used to quickly and easily reach many people in widely scattered areas (Van Dalen, 1966). This approach offers the respondent the advantage of answering the questions in private and at his leisure (Hillway, 1964). Thus, people are more likely to give honest answers. The mail survey is probably the most frequently used as well as the most highly abused formal method for tapping the information possessed by targeted individuals.

The period immediately after World War II saw a tremendous development in the use of the mail survey (Hillway, 1964). The large number of graduate students in our universities stimulated a renewed interest in the use of this approach as a data gathering device. More recently, a national magazine reported an increase of between 60-100 percent in the number of questionnaires received by people during the past decade. With this expanded use and the parallel refinement of methodology, the mail survey has become both a diagnostic and prognostic device in

education, politics, marketing, and social planning (Carithers, 1973). At the same time, it can be said that probably no data-gathering approach has been more subject to censure than the mail survey. Yet, it continues to be the most used, as well as the most misused, approach in education as both graduate students and education agencies continue to rely upon it as a research tool (Sieber, 1968).

Controversial Approach

As previously stated, the mail survey is one of the oldest procedures for collecting information in educational circles. Yet, according to many prominent introductory texts in educational research methods, dissatisfaction with the survey approach has persisted for almost half a century. Fortunately, this attitude was not shared by those in politics, marketing, and social planning (Sieber, 1968). Enormous strides have been made in the refinement of survey methods outside of the educational community, including innovations in sampling, design, administration of questionnaires, processing data, etc. Apparently, the pessimistic attitude toward the survey in education stemmed from the haphazard manner in which a high proportion of the persons who were responsible for the day-to-day business of education conducted these surveys. For instance, it is ridiculous for anyone, who has formulated an untested "armchair" data collection device, to expect or claim that the contrivance will produce accurate and reliable information (Strauss, 1969). Unfortunately, this type of irresponsible approach was more often the rule than the exception in education.

The great difficulty of making any type of study in education lies in the involvement of a multitude of factors, known and unknown,

very few of which can be isolated, regulated or controlled. To either produce, or measure, changes in human behavior, characteristics, or attitudes is a truly formidable task that challenges man's wisdom and ingenuity (Strauss, 1969).

In a mail survey, data is sought by asking questions of the respondent. This process assumes that a highly literate and compliant respondent is usually asked specific questions on the questionnaire and is required to choose from among a minimum number of options. The respondent himself may be the subject of the questions, or, the respondent may be reporting about other individuals or things (i.e., school principals may be asked to report about teachers or teachers asked to report about themselves or instructional materials). There is a potential danger for error at every step in the survey process. Utmost care must be taken with each step in order to obtain results which will be useful, valid, and representative of the reactions of the population.

Sources of Major Errors

Some of the sources of major errors include, but are not necessarily limited to, the following:

A. Sampling Design:

1. Inadequate definition of the total population
2. Inadequate sample size
3. Faulty method of sample selection
4. Incomplete population list
5. Unrepresentativeness of the sample

B. Instrument Design:

1. Poor wording and use of jargon and undefined acronyms

2. Poor sentence structure (i.e., poor grammar)
3. Use of leading questions which negate objectivity
4. Ambiguous questions
5. Inappropriate questions (i.e., respondent lacks information to respond)
6. Use of faulty definitions
7. Inadequate instructions

C. Respondent Reaction:

1. Disinterest in survey subject
2. Loyalty to survey director
3. Misunderstood question
4. Untruthful response
5. Partial response
6. Inaccurate response

D. Analysis and Reporting Design:

1. Inadequate editing
2. Incorrect coding
3. Inappropriate tabulation
4. Computation errors
5. Omission of pertinent data
6. Processing errors
7. Faulty or misleading conclusions

Tight administrative controls and careful planning by the survey director will do much to minimize most of these errors. The major purpose of the remainder of the information is to enable the reader to acquire a comparatively rapid insight into potential problem areas and

how to take the necessary steps to avoid them.

Survey Purpose

Historically, two schools of thought have existed in the educational community relative to the use of the survey as a professional tool. One school of thought believed that the survey should be limited to obtaining very narrow or enumerated data concerning some common factor of a group of people. This particular school of thought believed that the survey could serve satisfactorily as an exploratory device to learn about the gross dimensions of a social situation, but it would be inappropriate for use in isolating causative factors which can lead to the development of useful generalizations or predictions about people (Sieber, 1968). This disenchantment with the more sophisticated use of the survey as a data-gathering tool may well have stemmed from past abuses in which many efforts of this nature were either poorly designed or employed inadequate sampling procedures (Kohr and Suydan, 1970). On the other hand, the other school of thought believed that a survey could often result in the formulation of important principles of knowledge and the subsequent solution of scholarly problems (Hillway, 1964). Today, many members of the educational community feel that a sufficient amount of refinement has been made in survey procedure to advocate its use as a professional tool for various data gathering purposes. Here is how a sample of the authors (Barr, 1953; Bell, 1975; . . .) in the REFERENCE Section either defined what a survey is or described what it does. These authors indicated that a survey:

1. is used to provide managers with the information they need to understand, plan, operate, control and evaluate programs (Barr, 1953).

2. is used to measure what a person knows (knowledge or information), what a person likes or dislikes (values and preferences), and what a person thinks (attitudes and beliefs). Some of the most difficult problems in the behavioral science (Tuckman, 1972).

3. usually attempts to describe a condition or to learn the status of something (Hillway, 1964).

4. is used to identify a relationship of cause and effect (Hillway, 1964).

5. is used to justify the provision of special services or programs (Kohr and Suydan, 1970).

6. has been widely employed in recent years as a means of determining public opinion on national and international issues of the day, and as a means of conducting market research (Carithers, 1973).

7. is used to produce reliable and valid information which is essential for assessing needs, for forecasting future events, for establishing priorities for planning innovative programs, for establishing performance criteria, for writing goals and objectives, for designing evaluation procedures, and for formulating budget requests (Bell, 1975).

CHAPTER II

PLANNING

People's Behavior

People generally like to have their opinions and ideas sought. It flatters their ego to think that their suggestions will be taken into account when important decisions are made. This is a salient feature upon which the success of the survey approach is based. In the previous section, an attempt was made to demonstrate numerous ways in which surveys are used to either describe a condition or to ascertain the status of something. The collection and analysis of data about attitudes, desires, values, beliefs, opinions, aspirations, and understandings of people is often crucial to educational managers in shaping future directions. Unfortunately, collecting this latter type of data in such an indirect manner as a mail survey is a very complicated and tenuous process.

In education, it has to be recognized that gathering data from or about people is one of the most persistent problems in the behavioral sciences (Howe, 1976). Data about people is unpredictable, changing, and never appears to be conclusive. The behavior of people is influenced by any number of factors. Attitudes, opinions, feelings, and understandings which condition the behavior of people are subject to sudden and constant change. People come and go, issues shift constantly, and people change their minds, all of which makes it a very difficult task to collect valid data about people. Only careful and

detailed planning of any survey will contribute to forestall the influence of some of these unstable factors (Howe 1976).

Survey Design

Survey findings and conclusions can suffer significantly without the development and implementation of a comprehensive and detailed plan of management. To make an impact, the survey director must approach the task with a first-rate set of tools and a disciplined way of thinking about problems (Howe, 1976). Designing a survey is basically a chain of reasoning, each step building on the previous one. For, in the end, a survey must be cohesive as well as internally consistent. In this section, an attempt will be made to provide a basic framework of steps and logic involved in survey design.

At the outset, it is essential to have a clear idea of just what data is intended to be collected from the targeted population. The survey director must not only have a clear understanding of what information is needed, but also why it is needed. Answers to these two questions appear to lead quite naturally to each of the succeeding steps in the acquisition of the desired data.

When a potential survey director is aware of what information is needed and why it is needed, a decision can be made as to the best way of obtaining the information. It may well be that the data sought is already stored and can be retrieved from another source, and a survey is really not necessary. If this does not happen to be the case, then consideration should be given to the advantages and disadvantages of face-to-face interview, the telephone interview, the mailed questionnaire, or some combination of these methods. If by the application of

a test of reasonableness, it is determined that a mail survey is the best approach, then before the scope and content of the survey is determined, previous work, and current accomplishments in a particular area should be reviewed. A person who attempts a survey without first giving careful attention to what has already been done will be failing to avail himself or herself of much excellent help which can contribute greatly to the chances of success. A careful review of existing reports and related literature often uncover approaches that have been tried and found successful. These methods can then be adopted or adapted and used in your own effort.

As previously mentioned, the mail survey has the distinct advantage of reaching a large number of subjects in a very economical manner, and, the ability to elicit candid responses to sensitive questions through an anonymous, self-administered instrument. Nevertheless, these unique advantages can only be sustained when careful consideration is given to the design and execution of the three most crucial phases of a survey, namely:

1. the data collection or input
2. the data manipulation or processing
3. the report or output

Survey Elements

In designing a survey, numerous decisions need to be made. Most of these are judgmental decisions which are interlaced throughout all phases of the survey, and, which are directly influenced by the knowledge, background and experience of the person who conducts the survey. To again give the reader at this point some general idea of the kinds

of problems to expect, the following two areas will be briefly discussed: (1) purposes of a survey and, (2) steps in designing and executing one. Purposes often include, but are not necessarily limited to the following: Evaluation, monitoring, needs assessment, opinions, potential service, priority, status study, exploratory baseline data, identify trends, enumeration, and measurement of attitudes, beliefs, and values. Some of the key elements of a proposed survey are as follows:

1. The type and scope of survey
2. The population or universe to be polled
3. The type of questions to ask
4. The number of questions to include
5. The method of conducting the survey
6. The scope and method for conducting a pre-survey
7. The way in which responses will be processed and analyzed
8. The preparation of the report

Survey activities encompass many different operations that take place before, during, and after their execution. The restrictions on resources (e.g., fiscal, material, and human) have to be given very thoughtful consideration. The survey director must take a realistic approach during the design phase and know the time, money, and personnel it will take to complete each step. Drafting a questionnaire, coding responses, processing and interpreting data are all very costly in time and energy. To make sure of the payoff, outline precisely what each expenditure is expected to buy. It cannot be repeated enough times, but a crucial element which has a tremendous impact on subsequent steps is determining what data is actually needed. A rule-of-thumb approach is that the priority of importance is determined in terms of a "need to

know" as opposed to a "nice to know." Any increase in the number of items on the questionnaire can not only have an adverse effect upon the reaction of the respondent and the number of returns, but also increase the amount of resources needed to process, analyze and report the results. More about costs will be discussed later.

The Aspect of Timing

Pacing of survey activity should be given careful consideration. The development of a simple master-time schedule is an appropriate step. The survey tasks should be reasonably well-distributed so that they will not be clustered in such a way that the respondents will be unduly overburdened. Approximate dates, as well as the estimated manhours needed to execute each step, should be determined in advance. This not only helps to determine the feasibility of executing the various tasks, but also ensures their orderly completion. The timing of a survey, which involves practitioners in the educational community, should be considered in relation to cyclical or seasonable variations (i.e., holidays, opening and closing of school, etc.).

The master-time schedule need not be very elaborate. It could very well be a simple flow diagram or some similar schematic in which the tasks are arranged in sequential order, proceeding logically from one activity to another, and are accompanied by a timetable and man-power requirements. The time element associated with each task should be flexible enough to allow for the intersession of Murphy's Law - "If there is anything which can possibly go wrong, it usually does."

Following are some of the key questions which need to be resolved when undertaking a survey:

1. Why should the survey be conducted?
2. Is this the best way of obtaining the data?
3. What data is needed?
4. Why is the data needed?
5. What is already known about the problem?
6. How is the data to be used?
7. When is the data needed?
8. Who is to use the information?
9. What are the costs, time, and personnel involved in the survey?

CHAPTER III

SAMPLE SELECTION

The Total Population

The targeted group of people, to be polled in order to gain information, is generally called the total population of the survey. This entire group of people is also often called the universe, but for our purposes, the label total population will be used.

The first step in making any judgment about whether or not to sample is to define the total population. The process of defining the total population refers to the establishment of boundary conditions which specify who shall be included, or excluded, from the total population (Tuckman, 1972). At his point, the survey director has to ascertain whether or not he has the time, money, and energy to make direct contact with every single person in the population whose reaction is desired. If it is decided that it is either impractical, or impossible to contact each and every person, then the use of sampling techniques is in order.

Sampling is simply a means of carefully selecting a manageable portion of the total population to serve as respondents. It is an attempt to divide a total population into one or more constituent parts for the purpose of acquiring a truly representative cross section of the entire group. A sample is frequently defined as a subset from a larger population. The primary strategy of any sampling technique is to obtain a subset of the total population so that it possesses to the

same degree the special traits, or characteristics, which are under consideration in the survey. The ideal sample would be one which is an exact replica of the larger group. However, in the real world the variation among people makes it almost impossible to select samples which can be called exact replicas of the total population. The survey director must carefully devise the sampling strategy to guarantee, in every reasonable way, that the sample selected will reproduce the characteristics of the total population with the greatest possible accuracy (Hillway, 1964). Some of the obvious advantages of selecting a manageable proportion of a total population include the following (Furno, 1966).

1. Cuts the cost of doing the survey
2. Reduces manpower requirements needed to complete survey.
3. Enables data to be gathered that would not be possible otherwise
4. Increases data accuracy because responses can be edited and checked more easily
5. Saves time because data can be more rapidly collected, processed and reported
6. Reduces reporting burden
8. Non responses can be handled more effectively

Generalization

By and large, the process involved in the development of a sample design is a matter of good judgment. If proper procedures are carefully applied in selecting a representative sample, the survey director should be able to generalize the findings or conclusions of the survey from the sample to the total population with greater reliability and accuracy than could otherwise be done. Valid generalization involves the application of sample findings or settings other than, but similar

to, the ones involved in the data collection. The extent to which the survey director will be able to generalize the findings or conclusions from sample to population will be dictated by the precision of the procedures used. Most potential survey directors who have had no training in sampling can either get ideas on what to do from reading about other people's surveys, or by consulting with qualified experts. Regardless, it should be emphasized here that potential survey directors will find that the quality of sampling in published studies will vary enormously (Sudman, 1976). This would be another good reason for exploring the literature prior to designing your own survey. It should be emphasized that, more often than not, each survey situation exhibits its own unique problems which warrants its own particular solution.

To get a better insight into the problem of determining sample size, a person should be aware of the important, but often overlooked, factors which permeate the task. Generally, time and money have a great impact upon sample size. A case in point would be a comparison of sample size in the national surveys conducted under the sponsorship of the Federal government with those executed by graduate students. Actually, very little similarity exists. It should be noted that there is usually a corresponding increase in the investment of money and time to any noteworthy increase in sample size (Sudman, 1976).

Rule-of-the-Thumb

A rule-of-the-thumb is that small populations require a proportionally larger sample than do large populations. For example, if the total study population does not number more than a few hundred, a sampling of fifty percent may be necessary. While, on the other hand,

if it numbers well into the thousands, a sample size as low as ten percent, or even less, may be satisfactory (Hillway, 1964). If the total population is homogeneous or very similar in nature, a small sample will usually be sufficient. In any case, a random selection process should always be used. (Randomization will be discussed later.) If a sample is not representative of the total population, merely increasing the size will not result in a more reliable sample. Representativeness must be reconciled first, then size (Hillway, 1964).

Another factor to consider in making a decision about sample size is the manner in which the data is to be analyzed. If all of the planned analyses will be based upon the total sample, then the initial sample size arrived at may be quite adequate. However, for most analyses, breakdowns of the study sample are required (e.g., by respondent characteristic, geographic location, etc.). A general rule in this situation is that the sample should be large enough so that there are 100 or more subjects in each category of the major breakdown and a minimum of 20 to 50 in the minor breakdowns (Sudman, 1976). Adherence to this guideline will enable the survey director to place more confidence in subsequent generalizations.

The Mathematical Approach

The determination of sample size is not only an art, but also a very complex task. Unfortunately, there is no single best approach. The methods used vary greatly. Since there are potential survey directors who associate precision with mathematical calculations, the mathematics of sampling will be briefly touched upon. There are advantages and disadvantages to this type of procedure. One definite disadvantage consists of the failure of this approach to consider

pertinent factors in computing sample size.

According to classical statistical procedures, there is a standard mathematical formula for computing sample size. The calculations involved are designed to provide the degree of confidence which can be placed in the accuracy of a sample of a given size, as well as an idea of the sampling error which may be present. It should be emphasized, however, that the accuracy of the estimate of the proportion does not in any way depend upon the actual size of the total population--only upon the size of the sample.

To compute a sample size using the existing mathematical formula, you have to know two things (Sudman, 1976):

1. How precise you want to be. That is, how closely do you want the characteristics of the sample to match the real population characteristics?
2. How certain you want to be that your sample falls within prescribed limits.

The simple formula which computes sample size as soon as a decision is made relative to how much accuracy and how much certainty are desired is illustrated by the two equivalent forms found in Figure 2 (Tuckman, 1972; Welch, 1968):

Figure 2

1. $N = (z/e)^2 \ (p) \ (1-p)$
2. $N = \frac{0^2 \ pq}{e^2}$

N = sample size

Z or) = the certainty figure or confidence level desired

e = accuracy figure or proportion of sampling error in a given situation

p an q = estimated proportion or incidence of cases in the population

Probability	Confidence Level
90 %	1.65
95 %	1.96
97.5%	2.24
99 %	2.58

The accuracy figure can be plus or minus 2 or 5 percent of the actual number. The cost of the sample rises as both certainty and accuracy rise. A balance must be struck between squandering money on too large a sample, or getting too small a sample for any confidence. It must also be pointed out that as the size of the total population increases, the sample size doesn't increase proportionately. Application of the formula yielded a sample of 357 for a total population of 5,000 and only 384 for a population of one million (Best, 1977).

Random Sampling

One of the most powerful sampling techniques which can be used to reduce the possibility of bias or prejudice entering into the selection of a sample is called random sampling. Random sampling is a systematic process in which every individual within the total population is given an equal chance of being chosen (Sudman, 1976). The selection of any one individual is in no way tied to the selection of any other. Although there is no guarantee that a randomly selected sample will represent the characteristics of the total population, it

does leave the actual selection of respondents to chance (Van Dalen, 1966). The failure to use random sampling will make any generalization to the total population quite tentative.

Biased samples will usually produce a distorted picture of the population polled and thus generate a faulty base for making decisions. The random sampling technique assures that the sample chosen will not be distorted by the selection methods used. Remember, the final outcome sought is to be able to estimate the opinions, reactions or feelings of the total population under study. To be able to do this, the sample selected must be representative of that population.

The survey director is fortunate if the population he is studying allows him to use simple, random-sampling procedures. This means all members of the total population have an equal chance of being selected; the sample designer does not know in advance which ones they will be; he only knows how many he desires to select. This is the simplest way to avoid bias in selecting each individual to be included in the final sample.

Everything is not perfect! Even with the application of well designed sampling procedures, there is still an opportunity for error as a result of bias. The more heterogeneous, or different, the total population is, and the smaller the sample size, the greater the chance becomes of drawing a poor or biased sample (Van Dalen, 1966). Also, the use of simple random sampling can be a long and tedious process if both the sample and total population are unusually large, and manual procedures are used.

Other Sample Types

For the purpose of this section, the term "simple random sampling" and "systematic sampling" should be considered synonymous. Yet, before the actual approach involved is described in greater detail, it should be revealed that there are other approaches for choosing more sophisticated types of samples such as stratified, multistage, and cluster sampling. These techniques are generally more complex and require considerably more skill. It is recommended that if something other than a simple random sample is contemplated, assistance from a qualified consultant should be sought.

More complex sampling techniques are generally applied whenever a very large heterogeneous or "mixed" population is encountered. The objective is to increase the accuracy of the findings by dividing or classifying a heterogeneous population into smaller homogeneous strata, or categories. For instance, the process of dividing a total population into homogeneous subgroups (i.e., as male and female, urban and rural, rich and poor, etc.) is commonly called "stratified sampling." When, from each stratum or category, a predetermined number of elements are selected by the random procedure, the technique can be referred to as "stratified random sampling." The predetermined number of elements which are to be selected at random from each stratum, or category should correspond in proportion to the stratum's occurrence in the total population. The entire population has to be carefully analyzed in order to determine just what proportions fall into each homogeneous category. A considerable amount of judgment and skill is required to divide a population into the constituent parts that will make the sample truly representative.

Simple Random Sampling

Simple random sampling occurs when a sample is drawn at fixed intervals from a "tailor-made" or prepared list of all individuals in the total population. One of the most difficult tasks in sampling from lists is finding the appropriate list. Often lists will unknowingly contain duplications or ineligible respondents and even omissions. These are just a few of the factors that need to be considered in making a decision about which list, if any, will be used. Actually, the acquisition of any kind of an appropriate list would be a windfall. It provides a point of departure and can save numerous manhours of arduous labor. The remainder of this section will assume that a usable prepared list of the total population does exist.

Because of its simplicity, simple random sampling is used more frequently than any other technique. At least two other things are needed once you have obtained a list: They are (1) the sampling interval such as every fifth or tenth name on the list, and (2) a random start or selection of the first number (Sudman, 1976). This technique insures that every individual has an equal chance of being chosen. The selection of names at uniform intervals down a list or roster is probably the simplest application of the process. The first entry should be determined by selecting a number at random. Caution should be taken to note that there are no recurring unique features of the individuals who are associated with the interval used (i.e., the list is not biased due to some particular type of organization).

The most reliable method of selecting a random sample is by making use of a "Table of Random Numbers" which can readily be found

in the back of most statistical books (Barr, 1953). The actual procedure is very simple to apply. Before using the table of numbers, it is necessary to number all the individuals on the list which make up the total population. This can be done by starting with 1 and proceeding to 50, or 99, 199, 2,000, or whatever figure equals the total population number. For illustrative purposes, let's assume that the total population consists of 600 individuals.

One of the first questions that concerns a new user of the table is where to begin. The simple answer is that it really does not matter. One may begin anywhere in the table and move in any direction. The easiest thing to do is to start at the beginning and read down. Once a starting point is selected, the number of columns of digits must correspond to the number in the total population. If there are 600 individuals in the population, only three columns will be used (Sudman, 1976).

The table is entered at some random starting point and the selection of random numbers continues until the desired sample size is reached. Any number selected that is larger than the size of the total population is discarded. Also, if the same random number is selected more than once, the second and subsequent selections are discarded. Thus, in choosing the sample from the total population of 600 individuals, any three-digit number starting with 6, 7, 8, or 9 would be ignored except for the number 600 itself (Sudman, 1976). Note that the selection of any one individual places no limits on what other individuals can be selected from the total population. To illustrate this discussion, a partial table of random numbers is included.

Table 1

A Partial List of Random Numbers

102	715*	543	476	885*	662*
648*	833*	397	142	705*	018
803*	052	849	108	905*	431
011	168	907*	016	507	376
449	753*	848*	072	111	788*
043	659*	435	235	184	351

*Ignored

CHAPTER IV

INSTRUMENT CONSTRUCTION

Adaptation

The construction of a useful instrument is an extremely complex task and cannot be approached casually. The best advice which can be given is to get all the help you can in planning and constructing a questionnaire. Each policy question for which the survey was first initiated requires one or more different data elements. Note that it is possible that each policy question specified can and often does result in the development of more than one item on the questionnaire. In making any decision with respect to the type of information required, study other questionnaires or seek the collaboration of experts or specialists on the questions which have to be resolved (Barr 1953). In this way, the survey director cannot only guard against the omission of what may be a vital item, but also can isolate and precisely identify specific items for respondents to consider that will tend to objectify, intensify, and standardize responses.

Will Rogers once said, "The trouble with most people isn't what they don't know, but what they know that isn't so." The self-administered questionnaire has been a popular approach not only because it is economical, but also because many embryonic survey directors have assumed that they knew how to ask questions. But, asking questions that will obtain precise data is no easy task. Often novices are amazed when respondents draw many different meanings from questions that were thought to be per-

fectly clear (Van Dalen, 1966). To overcome respondent resistance, an instrument must be skillfully designed (Isaac and Michael, 1972). A questionnaire, when properly constructed and administered, possesses several notable advantages.

1. It becomes an inexpensive data collection tool.
2. It offers standardized stimuli; only careful wording and pretesting can lead to instructions and questions that are clear and precise.
3. It allows and encourages freedom of expression among the respondents.
4. It places little pressure on the respondent to generate any kind of response.

There are at least three avenues open in acquiring an instrument:

1. Adopt - Use an instrument which has already been used.
2. Adapt - Modify an available instrument to serve the specific purpose.
3. Invent - Design a new instrument from "scratch."

The most promising practice is to adapt, or modify, an existing instrument. Instruments borrowed, or modified from the work of others, should always be given courteous and proper acknowledgments. On the other hand, one of the best ways of "inventing" good objective items is to administer an open-ended trial form of each policy question to a very small representative sample of the population which will be polled during the actual survey. The lengthy answers which casually emerge from this type of questioning will provide a good source from which objective-type items can be derived (Isaac end Michael, 1972).

"Need to Know"

Since instruments take time and money to develop, extreme care must be taken to include only items which are germane to the key issues that

first prompted the survey. Otherwise, the economy of the questionnaire is likely to disappear. Data that is not absolutely essential and relevant to the purpose of the survey should not be collected (Van Dalen, 1966). The urge to collect too much data is always present. Fulfillment of this urge just adds to the workload of the respondents, and many times data of this nature is not even examined and analyzed. The most valuable advice that can be offered is to never go beyond a one or two-page questionnaire unless it is absolutely necessary. Imposing a restriction of this nature on the design of an instrument will tend to focus attention upon the "need to know" type of items at the expense of the "nice to know," an advisable outcome which every survey director should strive to achieve.

Instructions and Definitions

Inasmuch as separate instructions included with mail surveys are sometimes ignored, clear and concise instructions should be placed frequently throughout the instrument and as close as possible to where they are needed. Where appropriate and economical, the instructions should be highlighted in a different type face and, if practical, printed in a different color of ink. Brief general instructions on how the form should be completed, by whom, when, and so forth should appear directly under the title. Other instructions should be placed where they can be easily seen but will not interfere with the continuous entry of data. Avoid placing instructions either on the reverse side of a form or at the bottom of a page such as in a footnote. Instructions for return of the instrument should be placed on the instrument itself. This should be done because it is easy for the instrument to become separated from

the cover letter and the return envelope. These instructions should give the address to which the completed form is to be returned, and ordinarily should specify a target date for return.

Response instructions relative to each item are important. They should be clear, simple, and concise. A review of numerous instruments used in various national surveys revealed that the following were some of the most common instructions which were either included with each item or placed just before a series of similar items:

Circle one
Circle one in each row
Circle one on each line
Please check each item
Check one category for each item
Check all that apply
Check one
Mark one in each row
Mark one or more in each row
Check one or more
Check the one which best expresses your position
Check one primary reason
Write in
Please check the one which best describes the degree of difficulty
Do not report the same participant in more than one group
(Instructions at the Very End) Please place this questionnaire in the postage paid envelope provided and mail back to us at your convenience.
(Skip-Pattern Instructions) Are there currently any special classes in this school for pupils with a reading problem?
_____ Yes
_____ No (Skip to #15)
(Illustrated Instructions) Instructions given to the respondent for calculating staff assignments
One Full-Time Equivalent (FTE) is the same as 100% of time.

FTE	Percent of Time
1	100%
0.5	50%
0.1	10%

Please record FTEs (percent of time) to the nearest tenth (units of 10 percent). Here is an example of calculation of FTEs for five classroom teachers:

Classroom Teacher	#1	#2	#3	#	#5
FTE	1	1	0.5	0.2	0.8

Total FTE = 1 + 1 + .5 + .2 + .8 = 3.5

Definitions for all basic terms should be handled in a similar manner. Words that need defined should be whenever they are first encountered by the reader. The definitions should be an integral part of the questionnaire. The assumption is that the closer the definitions are to where they are needed, the more likely it is that they will be used. Once the format for instructions and definitions has been established, do not vary the scheme. This will only tend to confuse or discourage the respondent.

Definitions of terms used in various surveys are often provided to facilitate understanding. Definitions are usually handled in the following two ways: (1) located on a separate page, or (2) located as close as possible to the item defined.

When located on a separate page, the instructions regarding definitions may state:

> "Definitions of services and activities are on the first page," or "See definition #20."

On the other hand, when placed close to the term itself, it may be handled in the following manner:

> "Definition: Vocational Education Programs are those programs (such as nursing, plumbing, and accounting) which provide vocational or technical training, the purpose of which is to prepare the pupil for a gainful occupation: For the purpose of answering the following questions, programs which do not meet the requirements of your state vocational education plan should not be included."
>
> How many separate vocational education programs are conducted at this school? _____ Programs

The sentence structure for each item should be short and simple. Use the least number of words necessary to obtain the desired data. By all means, be sure that proper English grammar is used. Use standard abbreviations only when abbreviations cannot be avoided. Oftentimes, for the purpose of brevity, it may be desirable to use an acronym; however, when this situation arises, make certain that all of the parts of the compound term are spelled out the very first time it is used.

Item Arrangement

The configuration in which questions or items are arranged should be given careful consideration. The respondent will likely react more favorably to an orderly sequential pattern (Barr 1953). It is usually desirable to guide the thoughts of the respondents from the general to the specific, with all related items grouped together. The initial items "set the stage" and should begin to aid the respondent in the recall of data. Also, the first part of a questionnaire usually establishes rapport so the items placed at the beginning should in no way offend or anger the respondent. It is good practice to strategically locate items to arouse interest in order to maintain attention and avoid resistance.

Some instruments require the respondent to complete every item. Others are designed so that subsequent items may or may not be answered, depending upon the respondent's reply to a key item. For example, a key item may ask the respondent if he or she is a parent. If the response is no, then the respondent will be instructed to skip the next few questions which pertain to parents only. When an item is followed by two or three contingency items, which should be responded to only if

the first is responded to in a particular manner, the process is called response keying or a skip pattern (Tuckman, 1972). Both terms mean the same thing. Response-keyed items are recommended as a labor-saving shortcut for the respondent. The routing instructions are usually printed in caps, bold-face, or red ink in order to highlight them. It is also recommended that response-keying be kept to a minimum in constructing an instrument in order to avoid confusing the respondent.

Word Ambiguities

Probably the best advice that can be given to the prospective author of questionnaire items and instructions is to know the language the respondents are in the habit of using. Word ambiguities occur when words are used without proper reference points. Experience has shown that the use of words which possess authoritative, comparative, or judgmental connotations provide the major source of word problems outside of correct English usage. Also, problems often arise with the use of all-inclusive modifiers such as all, always, none, never, etc.

In items seeking opinions, every effort should be made to formulate wording that is neutral, that is wording which does not bias the respondent to give one kind of answer rather than another. Items can be unknowingly colored or loaded in one direction by the personal bias of the author.

For instance, the mere identification of an attitude or position with a prestigious person or agency can readily bias respondents. Also, avoid items which threaten or embarass the respondent, which may expose him to possible criticism, or which place him in an awkward position (Isaac and Michael, 1972).

Influencing Factors

Several factors exist which may seem on the surface to be insignificant, but which in reality can have a great impact on the rate of response for mailed questionnaires. If these circumstances are ignored in instrument design, they often trigger a negative respondent attitude and therefore, drastically reduce the rate of return. The reader will note that the various aspects listed below are quite explicit, and pertain for the most part to physical layout. Nevertheless, all of the suggestions are deemed essential enough to warrant careful consideration in the development of any data collection device.

1. The physical layout should present a tidy appearance and reflect adequate spacing. Make the instrument easy to read and follow, and avoid a jammed or crowded look.
2. Excessive length should be avoided. The fewer the number of items the better; yet, each item should be as short as possible.
3. Make sure the size of type used insures readability and appearance, and that different sizes of type are used for highlighting and headings.
4. The introduction should be realistically worded and the title should be descriptive of the content.
5. Both the return date and address should appear on the first page.
6. The instructions should be brief but unambiguous. Give clear and complete directions concerning the type and scope of data wanted, where it is to be placed, and in what form.
7. Vertical alignment should minimize the number of tab stops needed to type in responses.
8. Both vertical and horizontal spacing should conform to the area needed for handwritten or typed entries.
9. The response sequence should insure left to right and top to bottom order of completion.
10. Standard terms should be used and difficult words and acronyms defined.

Listed below are examples of concerns which are more esoteric in nature and which have an impact not only on response rate, but also determine whether or not the response provided to any given item is an accurate account of the condition being reported (Van Dalen, 1966; Furno, 1966):

1. Ability of author to probe the crucial issues in depth.
2. Ability of author to elicit quantified responses.
3. Asking embarassing questions.
4. Asking loaded or emotionally charged questions.
5. Excessive use of negative type items.
6. The amount of writing required of the respondent.
7. Asking the respondent to perform arithmetic computations.
8. The use of ambiguous instructions.
9. Inability of respondent to divulge the data requested.
10. Carelessness by the respondent in completing the instrument.

Manual or Machine Processing

Regardless of whether or not the processing of the data is to be done manually or by machine, the instrument should be designed for the most economical method. It is imperative that the survey director ensure that the instrument is structured in a manner that will facilitate and promote accuracy in coding and tabulating data. If the data is to be machine processed, then careful consideration should be given to the general format of the instrument, especially to the arrangement of the items and the response pattern. When electronic data processing is planned, a suitable format should be followed. Consultation with computer experts is urged to determine the most practical style to

follow. Whenever economically feasible, the use of brightly colored paper should be considered. This will not only help the respondents notice and recognize the survey materials, but also help anyone else handling the instruments to easily distinguish one from another, especially when there is a need to use different colors for different groups of respondents.

CHAPTER V

ITEM PRODUCTION

Item Format

There are two general classifications into which data items can be placed:

1. Open-form - Respondent replies in his own words.
2. Closed-form - Several responses are provided for each item, and respondent checks, circles, or underlines the one with which he agrees.

The task of tabulating, categorizing, and summarizing data is extremely difficult and time consuming, and should be carefully considered in making a decision about item format. The open-form type item permits the respondent to answer freely and fully. This type of format encourages free expression and is usually comparatively easy to construct. However, this approach also creates problems relative to quantifying, coding and scoring the narrative responses. After-the-fact interpretation and analysis of each of the responses must be made before they can be summarized and put into a manageable number of categories for comparison purposes. Open-ended items are by far the most difficult to process and analyze.

Closed-Form Type Item

Because of the aforementioned problem, the preference is usually for the closed-form type of item. An instrument constructed exclusively of closed-form type of items usually consists of clear and objective

questions. To record replies respondents simply check, circle, or underscore responses. Closed-form instruments are much easier to administer and fill out; they help keep the respondent's mind riveted on the subject; and they facilitate the process of tabulation and and analysis (Van Dalen, 1966).

A brief attempt will be made in this section to further acquaint the reader with the more commonly used closed-form type of item. Not only are there a variety of ways in which closed-form items may be composed, but also there are a multiplicity of forms or modes that the responses can take. The choice of the type of item format is usually based upon whether one is gathering factual or demographic data, or eliciting opinions or preferences of the respondents. Factual information type items are usually structured to collect frequencies, financial information, time assignments, etc. Opinions or preference-type items seek to attain from the respondent positive or negative orientations toward particular objects, persons, or ideas. The measurement of the latter has often been considered one of the most difficult problems in the behavioral sciences. Nevertheless, it is not uncommon to have a mixture of the two types of items in the same instrument

Matrix-Type Item

The matrix-type item (See p. 47) is the most frequently used format to gather factual-type data. The matrix-type item can have either open-ended or fixed response stubs. Both the instructions and the amount of spacing provided for posting the response are important considerations. In order to overcome the constraint of using a fixed

response stub, a write-in response of "other, specify" is often used to provoke a reply which was not provided. However, the write-in response can stir up problems either in the analysis or with optical scanning, etc. Another commonly used method in which respondents are asked to report factual information is the fill-in or completion mode. In this approach, respondents are generally restricted to a single word reply or a very short phrase (Tuckman, 1972).

Census-Type Item

One of the main values of demographic or census-type items is to identify who is responding. By using well-chosen factual-type items, the general characteristics of respondents who are favorable or unfavorable to an issue can be identified. This type of data can then be used for comparative purposes. For instance, it makes it possible for one to identify subgroups of the population that responded to particular items in the same way. More specifically, items of this nature are used to elicit salient characteristics about the respondents such as preparation, experience, etc. Nevertheless, desirable as this data may be, one should note that the items which are most offensive to respondents are usually those about income, occupation, family, dwelling, and age.

Multiple-Choice Item

As mentioned, beforehand, there are numerous closed-form item formats as well as response modes. On many topics, the respondent can be asked a direct question, check items on a list, rank items, or be provided with a statement and asked whether he agrees or disagrees. Using a multiple-choice or "cafeteria" type item can overcome some of

the problems of open-ended questions and still permit acquisition of the valuable data sought. The multiple-choice type item provides the respondent with a range of possible answers, usually four to five. With this type of item, responses are anticipated and categorized when the item is first constructed. In using this type, it is helpful to provide the respondent with a safety valve as one of the options, such as "undecided," "don't know," or "no opinion." Actually, there is no acceptable knowledge base for distinguishing among any of the various closed-form items. Generally, the survey designer chooses among them on the basis of the response mode he favors (Tuckman, 1972). Oftentimes, there is a commingling of several different types on the same instrument.

There are several approaches which can be used to construct scaled, multiple-choice items. A commonly used response mode for collecting data relative to opinions or preferences is the Likert-type or summated rating scale (Isaac and Michael, 1972). The respondent is permitted to indicate his degree of endorsement or rejection of a survey issue by choosing among a continuum of responses. Generally, the respondent is provided with a list of statements and is asked to rate each one separately on a five-point scale between two bipolar descriptors, i.e., from "agree" to "disagree." This mode is popular because it is easier to develop and yields about the same information as the more laboriously constructed, equal-appearing interval scale. In the analysis, mean-scale values are generally computed for each statement, and then the statements are ranked for importance.

The Five-Point Scale

The most popular format utilized to elicit opinions and/or attitudes has been the five-point scale (Tuckman, 1972). In this response

mode, the respondent is asked to select one of five separate options which are included between two bipolar descriptors and which indicate the dimension of his or her opinion, attitude, or feelings. The design of the item usually consists of either a statement or a question followed by the five-point scale.

Often the scale is intentionally reversed to counteract the habit of some respondents who follow a pattern of simply checking the same choice for each item included on the instrument. The five-point scale is popular because it is easy to quantify responses. Each point on the scale can be precoded and assigned a numerical score which enables responses to be immediately converted and summarized. Numerous instruments have been reviewed and some of the most commonly used five-scaled choices are included here:

Strongly agree	Of Little or no Benefit	Of Great Value
Agree	Of Some Benefit	Of Some Value
Neutral	Of Moderate Benefit	Of Little Value
Disagree	Of Substantial Benefit	Of No Value
Strongly Disagree	No Basis to Judge	Not Able to Judge
Excellent	Little or no Utility	Little Help
Good	A Limited Degree of Utility	No Opinion
Fair	A Moderate Degree of Utility	Some Help
Poor	A High Degree of Utility	Much Help
Unsatisfactory	Very High Degree of Utility	No Opinion
Not Important	Highly Valuable	Unsatisfactory
Slightly Important	Valuable	Requires Improvement
Important	Some Value	Effective
Very Important	Little Value	Very Effective
No Opinion	No Value	Outstanding
Outstanding	Very Well Satisfied	Highly Effective
Above Average	Satisfied	Effective
Average	About Half and Half	Moderately Effective
Below Average	Dissatisfied	Ineffective
Unsatisfactory	Very Much Dissatisfied	Not Able to Judge

No Importance	Strongly Favorable	Enjoy Strongly
Limited Importance	Foavorable	Enjoy Moderately
Moderate Importance	Neutral	Little Feeling
Considerable Importance	Opposed	Dislike Moderately
Very Great Importance	Strongly Opposed	Dislike Strongly
Very Successful	Not Available	Not Available
Quite Successful	Inadequate	Available/Very Adequate
About Average	Adequate	Available/Somewhat Adequate
Not Very Successful	Very Adequate	Available/Somewhat Inadequate
Unsuccessful	Don't Know	Available/Very Inadequate
Highly Valuable	Very Negative	Very Useful
Somewhat Valuable	Negative	Moderately Useful
Of Limited Value	Neutral	Only Slightly Useful
No Value At All	Positive	Not Useful
No Opinion	Very Positive	No Opinion
Very Informative	Definitely Will	Definitely Yes
Quite Informative	Probably Will	Probably Yes
Not Very Informative	May or May Not	Uncertain
Uninformative	Probably Will Not	Probably No
Don't Know	Definitely Will Not	Definitely No
Neither Like nor Dislike	Little or No Burden	No Extent
Like a Little	Some Burden	Limited Extent
Like	A Moderate Burden	Moderate Extent
Like Pretty Much	A Substantial Burden	Considerable Extent
Like Very Much	A Very Great Burden	Very Great Extent
Certain	Superior	Very Good
Very Sure	Excellent	Good
Somewhat Sure	Good	Neutral
A Little Uncertain	Limited	Poor
Very Uncertain	Don't Know	Very Poor
Very Good	Very Much So	Almost Never
Good	To Some Extent	Occasionally
Average	Not Sure	Frequently
Bad	Hardly	Almost Always
Very Bad	Not At All	Don't Know
Very Much	Always	Never
Much	Often	Once or Twice
Some	Sometimes	A Few Times
Little	Seldom	Several Times
None	Never	About Ten Times or More
Always	Very Strong Effect	Very Little
Usually	Strong Effect	Some
Sometimes	Moderate Effect	A Fair Amount
Almost Never	Little Effect	Quite a Bit
Never	No Effect	A Great Deal

Never	Very Much	Very Often
Seldom	Right Amount	Generally
Sometimes	Not Enough	As Often as Not
Frequently	Not at All	Occasionally
No Opinion	Don't Know	Seldom

None	Very Often
Less than Half	Generally
About Half	As Often as Not
More than Half	Occasionally
All	Not Able to Judge

Checklist and Rank-Order Type Items

Another popular method used in questionnaire design is the checklist. In this approach the respondent is asked to reply by checking one or more of the choices offered to him. This type of form does not represent a scale because the answers do not represent points on a continuum. Instead, they are referred to as nominal categories (Tuckman, 1972). Several problems with the checklist are usually encountered which can be avoided with a little planning. For example, the list should not be too extensive (no more than 10 items) and never divided so that part of the list is placed on the backside (or another page). Also, a problem can be anticipated with the treatment of data when the respondent is permitted to mark all items that apply instead of specifying a limit of three to four choices. If not limited, the results will not facilitate meaningful analysis of the data.

Highly similar to the checklist-type item is the type in which the respondent is given a series of statements and asked to rank them in terms of a specific criterion. Here again, similar problems can arise as associated with the checklist if identical precautions are not taken.

The Pretest

In planning a survey for the first time, it is essential to allow sufficient time in the overall schedule to make any of the desirable changes which will probably be uncovered during a trial run or pretest. A pretest is a very important step in developing the survey design, especially as it deals with overall instrument construction. Things seldom go exactly as planned in a survey and by conducting a pretest, mistakes in executing various phases can be discovered before they ruin the main effort. A small pretest helps "debug" operational procedures, provides a basis for early check and edit techniques, and aides in the elimination of ambiguously worded items and poor overall instrument design. It is extremely difficult even for an experienced survey director to develop an instrument with no confusing or ambiguous items. What may seem perfectly clear to one person may be confusing to another who does not have the same frame of reference gained by working in the area over a long period of time. That is why one should never develop an instrument in isolation. Get as much help from as many people as you can, even before the pretest (Anderson and Berdie, 1977).

The primary purpose of the pretest is to refine the instrument and procedures so that the finally designed survey will provide meaningful and interpretable data and provide the decision makers with what they need. Not only will reactions from the pretest enable rectification to be made in the ambiguities and unintended connotations which appear among items in an instrument, but they will also yield information about ambiguous instructions and other operating techniques, even problems in tabulating results. Here are some suggestions to consider in conducting a pretest (Isaac and Michael, 1972):

1. Select a small representative sample of the total population, 20-50 cases are usually sufficient.

2. Provide space on the trial instrument for the respondents to jot down reactions.

3. Administer the pretest under conditions comparable to the main survey.

4. Check percent of responses as an estimate; examine the instrument for trouble signs, i.e., items left blank, misinterpretations, ambiguities, and check comments for similar indications.

5. Analyze results to assess whether or not the survey will yield the desired information.

6. Make appropriate additions, deletions, and corrections based upon the trial run.

One of the best approaches encountered by the author was a design which was actually used in a pretest situation. A workbook type of instrument was constructed that attempted to capture each respondent's personal reaction to each of the trial items. The trial items were placed on the left-hand page. Located directly across from each item, on the right-hand page, were two questions constructed to stimulate the respondents' reactions. The following includes the instructions as the two questions used:

> "The right-hand page of the workbook requests comments relative to each item appearing on the left. Please answer each question about your program on the left-hand page, and then comment on this question in the appropriate section on the right-hand page. Your frank comments will be extremely important to the future success of the proposed survey."

1. Did you have any difficulty understanding this item or selecting a reply?

_____Yes _____No

2. Did you have any problems obtaining data to respond to this item?

_____Yes _____No

Item Production Problems

The major thrust of this section is to focus on a few of the problems which result from questioning strategy or wording. To illustrate how these problems evolve, actual examples of questionnaire items which have caused negative reactions among respondents are included here:

(Asking Too Much)

"If your answer was YES, please explain how many programs were offered, by whom they were offered, and what the content of the programs were: (Attach copies of any programs to this questionnaire if they are available.)" _____

_____

"If your teaching strategies have changed, why have they changed?"

_____

_____

"In order to prepare pamphlets that can be of help to parents, we want to know what parents remembered about the pamphlet. If you remember, please describe what the pamphlet told parents to do if they suspected that their child showed any of the early warning signs."

_____

_____

"In what ways would you use data from vocational/career interest measures if such instruments were made available to you?"

_____

(Two Questions in One)

"Do you feel appearance and attitudes of cooks affect school lunch participation?"

_____Yes _____No

"Do you have planned drama and/or dance activities in your school program?"

_____Yes _____No

"Are you responsible for or do you have any children?"

_____Yes _____No

(Offensive Items)

"What was your age on your last birthday?" _____

"Generally, what is your combined family income?"

_____Less than $2,999
_____$3,000 to $3,999
_____$4,000 to $4,999
_____$5,000 to $5,999
_____$6,000 to $6,999
_____$ 7,000 to $ 8,999
_____$ 9,000 to $ 9,999
_____$10,000 to $14,000
_____$15,000 and above
_____Don't Know

"What is your ethnic origin?"

_____American Indian
_____Black
_____Oriental
_____Puerto Rican, Central or South American origin or other Spanish origin
_____Spanish Surnamed
_____White
_____Other (Specify)

(Absurd Item)

"Rate yourself as a teacher."

_____Excellent
_____Good
_____Average
_____Fair
_____Poor

(Completion Type Item)

"What is the total amount of funds budgeted for elementary and secondary schools for the 1978-1979 school year under this contract?" (Report to the nearest $1,000) _____

(Matrix-Type Item)

Subject Areas	Instructional Materials	
	Audiovisual (dollars)	Books, periodicals and other printed materials (dollars)
Natural Science Mathematics Social Science/ Social Studies English (including reading)		
Total		

(Rank-Order Types - Two Kinds)

1. Indicate in order of importance the three most important factors from the list below that influenced your decision to leave your position. (List not included)

2. Indicate your response by rank ordering each of the following alternatives from the most to least impressive. Rank your first choice by circling 1st and do the same for the remaining alternatives, ranking them 2nd, 3rd, 4th and 5th:

a. 1st 2nd 3rd 4th 5th
b. 1st 2nd 3rd 4th 5th
c. 1st 2nd 3rd 4th 5th
d. 1st 2nd 3rd 4th 5th
e. 1st 2nd 3rd 4th 5th

CHAPTER VI

COSTS AND RESPONSES

Operated Statement

A cost estimate of various activities encountered in the proposed survey should always be made to ensure that the costs arrived at will not exceed available funds (Furno, 1966). A carefully constructed budget actually becomes an operational statement in monetary terms. The final draft of the budget is usually a good test of how well you have analyzed the details of your procedure.

The key to arriving at a realistic cost estimate is the ability to formulate a realistic work breakdown. The general work breakdown should include, but not necessarily be limited to, the following type of activities, which are usually associated with a mail survey: instrument construction, pretests, preparation and printing, sample selection, initial mailing, follow-up, editing, coding, tabulation, and reporting of the results (Anderson and Berdie, 1977). A rough rule of thumb to apply is to estimate that about half of the funds, as well as the perceived work time will have to be used in performing the tasks involved in preparing and executing the data collection activities and the other half for processing and analyzing the data and reporting the results (Sudman, 1976).

Any practical estimate of costs associated with the actual mailing procedures should include not only the postage and handling costs for the initial mailing, but also costs for at least two follow-up mailings to nonrespondents. In each subsequent mailing, a copy of the question-

naire should very definitely be included. Practice has shown that the use of stamped reply envelopes increases response, so the full cost of postage should be budgeted both ways for multiple mailings. Another often overlooked cost factor is associated with the actual span of time required to complete the survey. Assuming one allows three weeks between mailings, more than two months will have passed before the last few responses can be expected. This is time which should be designed in the overall time schedule of the survey (Sudman, 1976).

Response Rate

The rate of response from the individuals included in the sample is always of critical concern to the survey director. Response rate largely depends on such factors as how carefully the sample was selected, how clearly each item was phrased, how well the overall instrument was designed, and just how diligently the follow-up was conducted of those who did not respond (Anderson and Berdie, 1977). Unfortunately there will be non-respondents no matter how painstaking efforts were made to prevent them. Nevertheless, to completely ignore a large "nonresponse" group can result in the collection of data which is not representative of the total population. This obviously would mean that the survey was a complete failure. Therefore, a rigorous plan of dealing with the problem of nonresponse must be inaugerated at the outset (Barr, 1953).

Of utmost concern to the novice is the rate, or percentage, of response that will ensure that confidence can be placed in the survey findings. Here again, there are no precise guidelines, only promising practices. However, experienced survey directors concur that it is

better to get around a ninety percent (90%) response from a random sample of a few hundred, than it is to get a fifty percent response from a survey sample of several thousand (Anderson and Berdie, 1977). The commonly acceptable percentage level of response in mail surveys is usually eighty percent (80%) (Sudman, 1976) and anything less than two thirds would be highly suspected of harboring a definite bias. As implied earlier, a low response rate can often be contributed to sloppy field work, or a single mailing, or a lack of cooperation, or something similar. Long standing survey practices have shown that the more communication that exists with survey respondents before and during the survey, the more likelihood a successful data collection effort will ensue.

Counteract-Nonresponse

There are several things which can be done to counteract nonresponse. Most of them deal with some form of communication. Respondents need as much explanation and description of what is expected of them as can be provided. Whatever the perceived reasons might have been for conducting a survey, it must be fully understood and accepted by all respondents; all ensuing survey activity should be consistent with this line of thinking. The following list includes several suggestions which can have an important impact on the response rate (Leslie, 1970):

1. First, there is the cover letter which should include the following:
    a. A brief but clear statement of purpose
    b. An appeal to professional responsibility and/or intellectual curiosity
    c. A reasonable but firm return date

d. A letterhead and/or signature that will lend prestige and official status to the letter

e. Assurance that the information supplied will be used for statistical tabulations and that individual returns will be kept confidential.

f. A telephone number to use in case any problems or questions arise. This number should be toll free in regional and national studies.

2. It is important that a decision be made in the planning stages that questionnaires be sent only to respondents who possess the desired information, and who are considered to be sufficiently interested to respond conscientiously and objectively.

3. If a request is made for data which may be difficult to provide, it is helpful to give sufficient advance notice to prospective respondents.

4. The reportability of the data from the respondent's knowledge or from records must be considered, especially historical data.

5. The personal retrieval of questionnaires, if feasible, instead of having them mailed back, increases response. It also allows the questionnaire to be checked at the time of pick-up for questions which have been omitted, and sometimes a response for the omitted question can be obtained on the spot.

6. It was discovered that a greater return was obtained when the original request was sent to the administrative head of an organization. This procedure assures that when a supervisor turns over a questionnaire to a staff member to fill out, there usually is an implied obligation.

7. The initial mailing was carried out to allow the arrival of the questionnaire on Thursday afternoon or early Friday. It is assumed that respondents are likely to complete the questionnaire at the end of the week while in the process of cleaning up their desks.

Follow-Up

Most often the response to the first attempt to collect the data will be insufficient and a plan for follow-up will be needed. Ordinarily, one or two mail follow-ups can be anticipated and should be planned. Experience has indicated that expectations for the rate of

response of subsequent mailings should be about the same as the percentage that responded initially. For example, if about 50 percent of the respondents cooperated on the first mailing, it can be expected that 50 percent of the remaining group will cooperate on the second mailing, and approximately 50 percent of the last remaining group will cooperate on the third mailing (Sudman, 1976).

Second Mailing

The optimum time for a second mailing is usually prescribed by the design of the questionnaire and the nature of the respondents. After a period of two weeks and not more than a month has elapsed, it is prudent to correspond with those that have not yet returned their questionnaires (Tuckman, 1972). This follow-up request should always be direct and straightforward and should stress the need for the data and the professional significance of the survey. It ordinarily consists of another letter eliciting cooperation, nevertheless, it should also include another questionnaire in case the respondent has misplaced the original one (Hillway, 1964). It has been confirmed that on numerous occasions that just sending reminders out after the first wave of questionnaires had little discernible effect as compared to mailing new questionnaires.

Armtwisting

If after two follow-up attempts, the rate of response is still insufficient, a more intensive type of follow-up will be needed. An effective technique is to draw a second subsample from among the hard-core nonrespondents and concentrate efforts on polling this smaller group. This is done to determine if any common prejudice or adverse

trend toward the survey exists. Sometimes a personal note or phone call; or a phone call from another organization member; or, as a last resort, a personal visit and interview will usually be effective. Of course, all of this can and will be time-consuming, inconvenient, and expensive.

CHAPTER VII

REPORTING THE RESULTS

Plan of Analysis

It is an axiom of surveys that the overall effort is not fully designed unless it includes an analysis plan. The development of an analysis plan during the planning stage quite often includes the construction of "dummy" tables or table-shells. This ensures that the focus will be on the problem and not on the data. Usually the following are the major steps involved in the development of an analysis plan:

1. Determination of data needs relative to the survey's policy questions.
2. Construction of actual data items
3. Production of "dummy" tables or table shells.

The important question that needs to be asked at the very outset is, what data will be needed to shed light upon the policy questions?" and not to ask later, "What sort of questions can be answered with this data?" Know what you are going to do with the data before it is collected! Devise the actual format for tabulating and classifying the data to be collected. Anticipate the analytical procedure that needs to be pursued. Have a well thought-out plan for the statistical treatment of the data. Nothing is more frustrating to the novice than to have collected data and not know what to do with it. A well devised plan facilitates the analysis and presentation of evidence which, in turn, will sustain any of the conclusions reached. Undoubtedly, the

analysis plan is one of the most important components of survey design, for without it, the survey development, implementation, and the data collected can be rendered useless.

Instrument development and table-shell production should occur concurrently. This compels the survey director to think through what is expected from the survey and can readily reveal desirable changes in design which may be needed. When deciding on how the instrument should be structured, the survey director should always consider not only how the instrument is to be completed, but also how each item will be analyzed. For instance, many problems of data analysis can be avoided simply by careful wording and rewording of items.

It was previously mentioned that there were no specific rules for the selection of the response mode (Tuckman, 1972). The decision of which response mode to employ is usually influenced by the manner in which the data will be processed (i.e., manually, by use of punch cards, optical scanning devices, etc.). It is recommended that decisions about analyzing data be made in conjunction with the selection of response modes so the survey sponsor can start early to construct table shells.

Coding and Tabulating

Raw data obtained from questionnaires is not always usable in the exact form collected and usually has to be converted into a different form for analyses. Regardless of whether the data is received in the form of computer printouts or in the form of handwritten lists, there most always is a need to summarize these data in an efficient and effective manner. This first step in processing data is usually called coding. Coding can be defined as the process of assigning numerical

values to each of the responses. Coding techniques are designed to transform the responses into quantitative data. For instance, the assignment of a numerical value to each point on a five-point scale response mode is a typical application. It enables a score to be obtained for each item and for all the responses from all the people polled to be quantified, summarized and compared.

Tabulating is the process of categorizing coded data in some kind of order according to a prearranged system so they can be set up in rows and columns. Data in their natural form consist of "raw" numbers, (i.e., numbers of people in various categories or numbers of events). Most always in the analyses of data, these raw numbers are not enough. What usually is needed is some systematic method of summarizing the coded data and comparing one sum of numbers to another. For comparison purposes, it has been found that tables are preferred by the reader in lieu of long paragraphs of numbers in the body of a report. Although the table is the prevailing method used, not all processed data need to be presented in tabular form. Other types of graphic displays are also used, (i.e., charts, graphs, etc.).

The symbolic language used to summarize data can be either verbal or mathematical. The end sought is usable knowledge--the knowledge necessary and sufficient to make the decision-making task as efficient and as effective as possible. Coding and tabulating facilitate the process of putting the data into meaningful categories so they can be summarized and compared.

Descriptive Statistics

Coding and tabulating enable the data collected to be summarized

in a meaningful and convenient manner. The statistical analyses of the data are principally based on counts of numbers of units that fall into various classes and subclasses (Barr, 1953). There are numerous ways in which data can be statistically treated. In most types of data analyses associated with surveys, descriptive statistics predominate. Simple descriptive statistics will communicate with a wider audience including laymen and professionals, then the many esoteric statistical applications which are also used. In most surveys, it is sufficient to merely supply percentages than to tease out by sophisticated statistical techniques subtle differences. However, the statistical treatment of data should not be forced into a particular mold when some other technique might be more effective (Lins, 1968). If the analyses require more sophisticated statistics, the novice should consult either a good statistics textbook or a statistician.

For many technicians involved in survey work, mathematical and statistical tools of analyses have become ends in themselves. Too often authors of reports become disfunctionally enamoured with various statistical and mathematical tools. These technicians oftentimes permit the use and descriptions of various statistical treatments to overshadow significant findings and conclusions.

Common Types

The chief descriptive statistics used in surveys are ratios, proportions and percents. They are designed to show a part in relation to its whole. These elementary statistics are generally used to summarize and compare observations collected relative to the group of individuals polled. Percents are simply proportions which have been put into a more convenient form. They are easily derived by

multiplying the proportion by 100, thereby reducing the number of decimal places. Ratios are derived by division. In computing a ratio, the part is always divided by the whole. Percentages are probably used more often than the other common types. Percentages are frequently used in tables to compare groups of subjects on an equitable basis. They can also be used to indicate a percentage of gain or loss. (Guilford, 1956).

Occasionally, we are not so much interested in comparing as in summarizing. This task requires the use of measures of central tendency. The principal measure of central tendency used which is easy to compute is the arithmetic average or mean. Once the arithmetical means are computed for the different classes, basic summary tables can then be constructed.

Data Processing

Data processing involves such activity as editing the completed instrument, correcting any recording errors, codifying the data, etc. (Furno, 1966). The basic survey design should include procedures not only for coding and tabulating the data, but also for editing returns. Detailed edit specifications can and should be developed in advance to check the logical consistency and accuracy of data provided on the questionnaire as they are received. This usually consists of a manual or visual edit check of responses to certain key items on each questionnaire. It is always expedient to apply these edit checks as soon as returns are received so that a quick-resolving follow-up can be made.

Just because computers have become more readily available does not automatically mean that data should be processed by computer

(Furno, 1966). Manual tabulation may still be the quickest, cheapest and easiest way to process the data. If a small survey involves application of only a few simple descriptive statistics, the chances are good that the data should be processed manually. If the study is very large, and if correlations, variances, factor analyses and the like are to be made, the odds are good that a computer should be used to process the data. When in doubt, seek technical assistance!

Computers

Automatic or electronic data processing equipment is brought into the picture only when economy and efficiency justify it. Data manipulation is basically what electronic data processing is. A computer is a tool that relieves the tedium of the clerical aspects of data handling. Electronic computers have made it possible to do quite easily the statistical work that formerly would have been too expensive to undertake in large-scale surveys (Furno, 1966). The advantage of using a large sample has been enhanced with computer technology. For instance, large volumes of survey instruments make it far more economical to "optically scan" the completed returns than to try to handle them manually. Scanning even provides more accurate data than any key-entry process. Experience has shown that scanners can be used to capture data through the optical mark reading process considerably more reliably than data can be captured through keypunch key-verify process.

A word of caution should be interjected at this point, for preparing and processing data in a computer environment risks many sources of errors. These errors are generally of the following nature:

incorrectly coded or punched input cards, program errors which are often obscure and complex; errors in special instruction decks controlling the programs; and mishandled magnetic tapes. The complexities of computer technology usually force survey directors to accept printouts of final results on faith. A helpful safeguard is to draw a small sample of data and run a parallel analysis by hand. This serves as an independent check against such errors (Isaac and Michael, 1972).

The Interpretation Process

The interpretation process involves determining what processed data appears to be the most important. For it is not really facts that resolve policy questions, but the conclusions which can be drawn from these facts through reflective thoughts (Hillway, 1964). At this point, the thing to avoid is "paralysis of analysis" or the inability to identify concrete factors through deductive analyses which could fulfill the purpose of the survey. After the data has been treated and illustrated in a graphic manner, the interrelationships among the summary data can be explored. In most cases, it should be quite apparent at this stage just what conclusion can be drawn. A common flaw is failure of the survey director to examine the findings from various angles in order to extract all possible meanings from the data.

Data Presentation

No matter how carefully the survey was planned and executed, if the results are not presented in a succinct and comprehensible manner, administrators who have the responsibility for making decisions based on the results may distrust and perhaps disregard the conclusions and

generalizations. Various techniques of data presentation should be explored. The survey findings can be presented either in narrative form or displayed graphically, or a combination of both may be used. The advantage of a written page accompanied by a well designed, clear graphic is somewhat synonymous to the advantage of a presentation using audio-visual materials rather than mere verbalization (Lins, 1968).

Survey reports usually contain numerical data and the person preparing the report must give consideration as to how the summarized data can be presented most effectively. There are many different ways of displaying data. Popular forms of graphic presentations ordinarily used include tables, bar graphs, trend lines, pie charts, etc. Presenting data in graphic form is an art. "A picture may be worth 10,000 words, but only if it is properly done (Guilford, 1956)." The method of presenting data is significant. If the data is to be useful, the data has to be understood by the reader. An attractive and well presented graphic can readily convey a thought which otherwise may not have been understood by the reader, even after wading through numerous pages of text. Nevertheless, tables, charts, and graphs should only be included in a report if they serve the purpose of presenting a quick visual impression of pertinent data. Avoid complicated profiles which cannot be translated easily and which only tends to confuse the reader (Lins, 1968).

The primary purpose of frequently used graphs and charts is to visually present numerical data in a clear, simple and effective manner by means of lines, bars, points, shaded areas and other geometric symbols and forms. Charts and graphs are not only used to stimulate interest and maintain the attention of the reader, but also to provide

a more comprehensive picture of large masses of statistical data much faster than could be presented either by tables or the text.

A very good reference in which a vast array of different graphs and charts can be examined for possible adaptation is a publication of the National Center for Education Statistics entitled, The Condition of Education, 1978 Edition, U.S. Government Printing Office, Stock No. 017-08001822-5. This educational report incorporates a novel format for presenting data. Each entry on a topic consists of a table and a chart which are presented together. The data highlighted in the chart, and briefly described in a statement accompanying the chart, are extracted from the facing table. Data used in the chart appear in boldface type in the table, which may be readily consulted for further information.

Tables

Administrators are confronted with many elaborate reports each day. It is frequently impossible for some administrators to read all the materials which reach their desks; therefore, if the report is simple, brief and as clear as possible, it is more subject to being noticed and examined. Survey reports most often include some presentation of summary data in the form of statistical tables. Tabulation is preferable in the presentation of summary data because it is felt that this is the most effective way of providing key information to a reader who is more concerned with conclusion than with minute detail. The use of tables is considered an efficient method from the standpoint of the amount of space consumed in the report and by enabling various data to be located together for comparative purposes (Lins, 1968).

The basic objective of a table is to arrange and present data so the reader can grasp the information quickly. Tabular presentation represents a procedure for organizing, analyzing, and gaining meaning from numerical data and can be considered as much as a statistical technique as some of the more complex procedures. Tables are especially useful when large amounts of data of various classifications are presented. Well constructed tables facilitate communication. Poor reporting procedures have often been the reason administrators were confused by statistics.

The clarity and meaningfulness of tables found in a report are usually a direct outgrowth of the clarity and thinking on the part of the author. Nevertheless, there exists a few suggestions and rules of tabular arrangement which can be of great assistance to the author who intends to present data in table form. In a report, it is well to use a consistent form for all tables, a form which makes the tables self-explanatory to the reader.

As previously stated, the use of tables is a statistical technique which is employed when the data are rather extensive and it is necessary to summarize the data and make repeated reference to them in the report. There are certain aspects which should be considered in determining which set is to be placed in the rows (the horizontal arrays). Pages are generally longer from top to bottom than they are wide and, therefore, the classification which requires the greatest number of categories could be arranged more easily in the horizontal arrays. In most tables contained in typewritten reports, vertical lines may be omitted. A blank space can serve to separate two columns of figures as distinctly and as well as a line, and the use of the blank space often makes the

table more readable.

Remember, a table's primary purpose is to shed light on some problem; thus, the title should explain to the reader the exact reason for its existence. The author composing a title should give careful consideration to the classical questions of what, how, where, and when. The most important requirement of a table title is that it should be clear, complete, and concise. Since the title must be very complete, it is often quite long.

After the first draft of each table is completed, it should be edited and numbered. Each table should be carefully examined for accuracy in terms of labeling, correct input data, and data aggregation. All tables should be numbered, and the numbers should run consecutively throughout the report. Arabic numerals are generally preferable.

Since many persons have difficulty interpreting a table because they do not understand columns and rows of figures, a clear discussion should always accompany a table (Lins, 1968). A satisfactory reference to a table usually includes the specific reference to the table by number, a brief summary of the overall picture provided by it, and the citing of its most important aspects. In the reference, every effort should be made to refer to the tabled data in a way which will cause the reader to turn to it and study it and hopefully grasp the points the author intends to convey. It is ludicrous to attempt to highlight all of the information contained in any table. Treat only the salient features of the table which contribute to and substantiate the findings and conclusions of the report. Another type of discussion which should not appear in the text of the report is a set of directions for reading each table. This could very well insult the intelligence of the reader

and negate the effectiveness of the report.

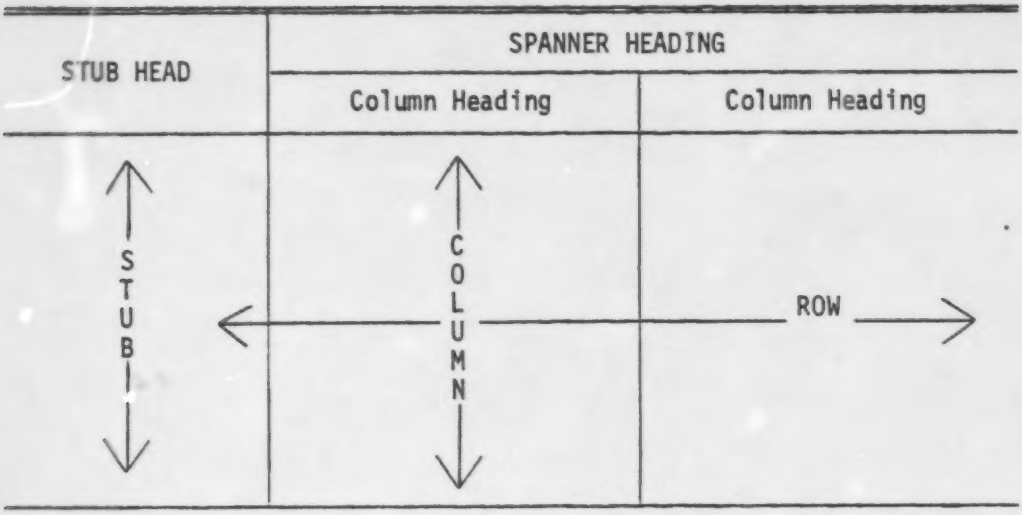
A table should always appear as near as possible in the report to the discussion that relates to it. The prime purpose of the reference is to give the reader a clear understanding or interpretation of how the author is using it. The usual procedure is to position the table immediately following the reference made to it in the text; it is usually located on the following page if the page containing the reference will not accommodate the entire table. Reference should be made to the table by table number and should include the page on which the table appears, if the page is different from the one on which the reference is made. For example, it is clearer and more accurate to state, "Table 5 on page 10 indicates . . ." than "The following table indicates . . ." (Lins, 1968).

FIGURE 3

THE PRIMARY PARTS OF A TABLE

Table Number (Arabic Number)

Table Title



*Footnote

Table 2 (Example)

Characteristics of Classroom Teachers
by Degree Status

ORGANIZATIONAL LEVEL	HIGHEST DEGREE OBTAINED*		
	Bachelor's	Master's or Higher	No Degree
Elementary	124	53	1
Secondary	94	61	0
Total	218	114	1

*Spring 1977

Remember Your Audience

Good survey execution includes careful presentation of the results. If the report cannot be easily understood by the targeted audience, the whole project can be considered a waste of time. Survey responsibility is communication responsibility! It is the survey director's responsibility to synthesize the information in such a manner that it will be useful to a specific audience. The report itself should be written in plain, straightforward language and be easy to follow and understand. Jargon, pompous verbiage, undefined terms, and vague descriptions usually signify that the author either did not understand what he or she was doing, or could not express himself or herself meaningfully, or was trying to impress the reader.

Do not pontificate! The report should be characterized by modesty and humility, not by verbosity nor bellicosity. Write a succinct report which school administrators can understand. For busy decision-makers, it is essential that a report deliver its message clearly and concisely. The reader should be able to share and accept the author's feelings and conclusions without having to plough through pages filled with nonessential information and unnecessary technical language. For no matter how judiciously the data is collected and processed, if the results are not presented in a succinct and comprehensible manner, persons who have the responsibility for final decisions may develop misgivings about the survey procedures. This could readily cause them to disregard the findings and conclusions altogether (Lins, 1968).

To do a professional job, the author must tell enough about the study to enable readers to judge the merits of the methods used in order to form an opinion of how seriously the findings should be

accepted. Several crucial elements are frequently included. They comprise the nature of the sample, the data collection technique, the extent of nonresponse and method used to deal with this problem, and the method of data treatment and analyses. This type of meticulous reporting enables the reader to make his own independent check of the procedures used and conclusions reached.

Frank and open recognition of any shortcomings or limitations in the report can do much to build confidence and respect among the readers, especially when it was followed by remedial measures. It behooves the author to be intellectually honest! Negative conclusions and failures encountered during the execution of various phases of the survey are thoroughly respectable and legitimate items to report. Two of the areas in which misjudgments are often made are: (1) extrapolation of the findings and conclusions to unjustified situations, and (2) drawing conclusions not warranted by the findings.

A prime requirement of survey findings and conclusions is that they shall be communicable to others. Survey directors cannot cause useful change to occur unless they are able to communicate with the people who are expected to execute the change. It is unrealistic to attempt to address both a nontechnical and technical audience in a single report (Schutz, 1976). Generally people in the educational community who conduct or who are responsible for the day to day business of education can be considered a nontechnical audience. Some of these decision-makers in reading a report of the survey results are often intimidated or even antagonized when a report is needlessly prolonged by quantitatively expressed methodological presentations and the accompanying statistical jargon about chi-squares and t-tests. That

is why it is always best to use simple descriptive statistics whenever warranted. This is the kind of account everyone understands best, including laymen. A nontechnical audience is rarely overly impressed with the technician's mumbo-jumbo (Howe, 1976).

Many times incidental or extraneous information is obtained in carrying out a survey. If this secondary information makes no contribution in clarifying the findings or conclusions of the survey, it should be disregarded. The inclusion of unnecessary information will only serve to confuse the reader and distract from the basic purpose. What should be included as well as highlighted in an appropriate place in the report is a plain and simple statement of the findings and conclusions, a brief summary statement that the reader can understand without having to read everything which has gone before.

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